

**Listing of Claims**

- 1-31. (Cancelled)
32. (Amended) A reinforced multilayer pipe comprising:
- (a) a first thermoplastic tubular structure;
  - (b) a second thermoplastic tubular structure covering the first thermoplastic tubular structure;
  - (c) a reinforcing structure covering the second thermoplastic tubular structure, wherein the reinforcement structure is a steel tubular; and
  - (d) a barrier layer disposed between the first thermoplastic tubular structure and the second thermoplastic tubular structure, wherein the barrier layer has a carbon dioxide permeability of less than  $0.50 \text{ cm}^3/100 \text{ cm}^2/\text{day}/100 \text{ kPa}$ .
33. (Original) The reinforced multilayer pipe of Claim 32 wherein the first thermoplastic tubular structure, the barrier layer, and the second thermoplastic tubular structure are coextruded.
34. (Original) The reinforced multilayer pipe of Claim 32 wherein the barrier layer comprises one or more of the following: polyamide; nylon; extrudable polyvinylidene chloride; poly(vinyl chloride) (PVC); methyl methacrylate-styrene copolymers (70:30 weight percent, respectively) grafted onto a diene elastomer; amorphous polyamides and crystalline polyamides (nylon-6 and nylon-66); crystalline polyesters such as polyethylene terephthalate (PET); poly(ethylene 2,6-naphthalene dicarboxylate) (PEN); polyurethane; polycarbonate (PC); polyphenylene oxide (PPO); polyphenylene oxide/polystyrene blends; polystyrene; polyetherimide; polyalkyl methacrylate; high nitrile polymer; high acrylonitrile-styrene co- and terpolymers; high acrylonitrile-indene co- and terpolymers; homo-, co- or terpolymers high in methacrylonitrile content; all common homo-, co-, or terpolymers based on vinylidene dichloride (PVDC); and a metalized oriented polypropylene film.
35. (Original) The reinforced multilayer pipe of Claim 32, wherein the barrier layer has a carbon dioxide permeability of less than  $0.10 \text{ cm}^3/100 \text{ cm}^2/\text{day}/100 \text{ kPa}$ .

36. (Original) The reinforced multilayer pipe of Claim 32 wherein the barrier layer has a carbon dioxide permeability of less than  $0.01 \text{ cm}^3/100 \text{ cm}^2/\text{day}/100 \text{ kPa}$ .
37. (Cancelled)
38. (Original) The reinforced multilayer pipe of Claim 32 wherein the reinforcing structure is a drill well tubular.
39. (Original) The reinforced multilayer pipe of Claim 32 wherein the reinforcing structure is a production tubing tubular.
40. (Original) The reinforced multilayer pipe of Claim 32 wherein the reinforcing structure is a production casing tubular.
41. (Original) The reinforced multilayer pipe of Claim 32 wherein the reinforcing structure is a sewer line tubular.
42. (Original) The reinforced multilayer pipe of Claim 32 wherein the barrier layer has a thickness of at least  $13 \text{ }\mu\text{m}$  and no more than  $250 \text{ }\mu\text{m}$ .
43. (Original) The reinforced multilayer pipe of Claim 32 wherein the barrier layer has a thickness of at least  $13 \text{ }\mu\text{m}$  and no more than  $60 \text{ }\mu\text{m}$ .
44. (Original) The multilayer pipe of Claim 32 wherein the barrier layer comprises an ethylene vinyl alcohol copolymer.
45. (Amended) A well tubing joint comprising:
  - (a) a first thermoplastic tubular structure;
  - (b) a second thermoplastic tubular structure covering the first thermoplastic tubular structure;
  - (c) a rigid tubular section covering the second thermoplastic tubular structure, wherein the reinforcement structure is a steel tubular; and

- (d) a barrier layer disposed between the first thermoplastic tubular structure and the second thermoplastic tubular structure, wherein the barrier layer has a carbon dioxide permeability of less than  $0.50 \text{ cm}^3/100 \text{ cm}^2/\text{day}/100 \text{ kPa}$ .
46. (Original) The well tubing joint of Claim 45 wherein the first and second thermoplastic layer comprise a polyolefin material selected from the group consisting of polypropylene, copolymers of polypropylene with other olefins, polyethylene, and copolymers of ethylene with other olefins.
47. (Original) The well tubing joint of Claim 45 wherein the first and second thermoplastic layers further comprise a functionalized polymer, an acid terpolymer, or an ethylene acid copolymer.
48. (Original) The well tubing joint of Claim 47, wherein the functionalized polymer is maleic anhydride.
49. (Cancelled)
50. (Original) The well tubing joint of Claim 45 wherein the first thermoplastic tubular structure, the barrier layer, and the second thermoplastic tubular structure are coextruded.
51. (Cancelled)
52. (Original) The well tubing joint of Claim 45 wherein the barrier layer has a carbon dioxide permeability of less than  $0.10 \text{ cm}^3/100 \text{ cm}^2/\text{day}/100 \text{ kPa}$ .
53. (Original) The well tubing joint of Claim 45 wherein the barrier layer has a carbon dioxide permeability of less than  $0.01 \text{ cm}^3/100 \text{ cm}^2/\text{day}/100 \text{ kPa}$ .
54. (Original) The well tubing joint of Claim 45 wherein the barrier layer has a thickness of at least  $13 \text{ }\mu\text{m}$  and no more than  $250 \text{ }\mu\text{m}$ .

55. (Original) The well tubing joint of Claim 45 wherein the barrier layer has a thickness of at least 13  $\mu\text{m}$  and no more than 60  $\mu\text{m}$ .

56-63. (Cancelled)

64. (Previously presented) A multilayer pipe consisting essentially of:

- (a) a first thermoplastic tubular structure;
- (b) a second thermoplastic tubular structure covering the first thermoplastic tubular structure;
- (c) a barrier layer disposed between the first thermoplastic tubular structure and the second thermoplastic tubular structure; and optionally,
- (d) a rigid tubular section covering the second thermoplastic tubular structure.